

are separate from each other, wherein the transport device transports the laundry pieces in a transport direction;

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a recognition device disposed in relation to the transport device for determining different types of the separated laundry pieces being transported by the transport device through a region, the recognition device generating a data signal in response to the recognition of individual separated laundry pieces;

3
a registering device disposed in relation to the transport device for sensing a location of a laundry piece on the transport device, the registering device generating a register signal for the individual laundry pieces indicating their presence at a location;

a data processor for receiving the data signal and the register signal for the laundry pieces, the data processor associating the data signal and the register signal, and generating a control signal in response thereto;

a plurality of collection containers disposed downstream of the recognition device in the transport direction for receiving laundry pieces, wherein the individual collection containers are predetermined to receive particular types of laundry pieces; and

a collection device for directing the particular types of laundry pieces to the predetermined collection containers based on the control signal from the data processor.

REMARKS

Reconsideration of this application as amended, is respectfully requested.

Status of the Claims:

Claim 29 has been added.

Claims 1 and 9 are cancelled without prejudice.

Claims 2-8 and 10-29 are pending in the application.

The amendments to claims 2-8 and 10-28 and new claim 29 do not add new matter.

REJECTIONS UNDER 35 U.S.C. § 112:

Claims 1-17, 21-22 and 27 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that the applicant regards as the invention. In particular, the Examiner cites numerous defects in claim 1. Claims 1 and 3 were rejected for lack of antecedent basis for the phrase "the data processing plant." Claim 3 was further objected to because the phrase "conveyed separately each other" was considered nonsensical. In claim 4, the language "each case" was stated to render the claim nonsensical. Claims 9, 12, 21 and 27 were objected to because of a double negative in a phrase. Claim 17 was objected to for insufficient antecedent basis for "the second recognition device."

In order to overcome these rejections, Applicant has re-written claim 1 as new claim 29 and has amended the other claims to address the rejection under §112, without changing the scope of the claims. Thus, these objections should be withdrawn.

REJECTIONS UNDER 35 U.S.C. § 103(a):

Claims 1, 2, 8, 17 and 23-25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,136,778 to Wortman et al. (hereinafter "Wortman") in view of U.S. Patent Application Publication No. US 2001/0032805 to Lawandy et al. (hereinafter "Lawandy"), U.S. Patent No. 5,377,814 to Smith et al. (hereinafter "Smith") and U.S. Patent No. 5,301,809 to Skinner.

The Examiner states that Wortman discloses a system and method for sorting laundry comprising of a supply device, a recognition device, collection devices, transport devices, a data processing plant and a register device. The Examiner admits that Wortman does not teach monitoring the region by laser and using blowers perpendicularly mounted to transfer the laundry pieces to the collection devices. Nevertheless, the Examiner states that Lawandy teaches that air jet sorting and a laser imaging system are well-known equivalents to the system taught by Wortman. Furthermore, the Examiner states that Skinner and Smith reinforce the conclusion that using laser imaging systems in laundry sorting is well known in the art.

Applicant respectfully traverses this rejection by stating that claim 1 has been cancelled and claims 2 and 8 have been amended to depend from new claim 29. Claim 29 contains all the limitations of claim 1 and the limitations of claim 9. The sole rejection of claim 9 was under § 112, second paragraph. Thus, the Applicant assumes that the limitations recited in claim 9 are patentable once the informalities have been corrected.

Claim 29 corrects the informalities in the limitations stated in claim 9. In particular it recites the limitation that the feed device dispenses the laundry pieces

to the transport device with either a predetermined distance between the laundry pieces or a predetermined time interval so that the laundry pieces are separated from each other. This results in only one laundry piece being transported to the recognition device at a time. This is opposite to the teachings in Wortman. Specifically, Wortman states that "[i]t is possible that two or more tags may move past the detector 34 at substantially the same time." (see column 4, lines 55-56). Thus, the delivery of one laundry piece to the recognition device (Wortman's "detector") is not assured. Additionally, Lawandy teaches that the soiled and unsorted laundry are loaded by various means into the master control module (see page 5, paragraph 0062). However, Lawandy does not disclose how the individual pieces of laundry will be separated prior to identification. Again, claim 29 clearly claims a system whereby the laundry is separated into individual pieces before identification.

Applicant further traverses this rejection by stating claim 17 has been amended to contain the limitations of claim 9. Thus, the same argument as to the patentability of the limitations of claim 9 are applicable here as well.

Applicant respectfully traverses the rejection of claims 23-25 by stating that claim 23 has been amended to include steps whereby the laundry pieces are dispensed to the transport device either using a predetermined distance between the laundry pieces or a predetermined time interval so that the laundry pieces are separated from each other. This results in only one laundry piece being transported to the recognition device at a time. The Applicant submits that this amendment contains the limitations of claim 9 rewritten in method form. Thus, the same argument as to the patentability of the limitations of claim 9 are applicable here as well.

Claims 18-20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Wortman, in view of Lawandy, Skinner, Smith and further in view of Weiss. The Examiner states that Wortman teaches all that is claimed, except for expressly teaching a registering device associated with each collection device. The Examiner further states that Weiss teaches the use of predisposed sensors for each receiving/collecting station.

The Applicant respectfully traverses this rejection by stating that claims 18-20 depend from claim 17. Claim 17 has been amended to distinguish the present invention over the Wortman reference. Withdrawal of the rejection is respectfully requested.

ACKNOWLEDGMENT OF ALLOWABLE SUBJECT MATTER

The Applicants would like to thank the Examiner for the acknowledgment of allowable subject matter in claims 26 and 28.


CONCLUSION

In view of the foregoing, it is believed that claims 2-8 and 10-29 are in condition for allowance and it is respectfully requested that the application be reconsidered and that all pending claims be allowed and the case is passed to issue.

If there are any other issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the

Examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Louis J. DeLuca", written over a horizontal line.

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MARKED-UP VERSION OF CLAIMS IN MAY 6, 2002 RESPONSE:

Serial No. 09/595,136

Docket No. 1954/OK538

2. (Amended) The device according to claim [1] 29, wherein the transport device [includes] further comprises a transport band (60), wherein the collection [devices] containers (14,16, 18) are disposed along the transport band (60) in a transport direction (22).
3. (Twice Amended) The device according to claim [1] 29, [wherein in each case] further comprising a blower device (52, 54, 56) [is] coordinated to the collection [device] containers, (14, 16, 18)[, wherein] the blower device (52, 54, 56) [is connected with respect to control to] receives the control signal from the data [processing plant] processor (50), wherein [a] the control signal (74) [delivered by the data processing plant (50)] directs the corresponding blower device (52, 54, 56) [for generating of] to generate a stream of air[, wherein this] and the stream of air is directed horizontally and perpendicularly to the direction of the transport device (60) in the region of the laundry pieces (12), wherein individual laundry pieces (12) are conveyed separately [each other] and disposed in the collection device area corresponding to [this] the blower device, such that the laundry pieces (12) [is] are blown into the collection [container] containers (14, 16, 18), [wherein a] when the laundry pieces are not blown into the collection containers, the control signal (74) delivered by the data [processing plant] processor (50) is re-generated and the corresponding blower device (52, 54, 56) generates a further stream of air [when laundry (12) is not blown into container].

4. (Amended) The device according to the claim [1] 29, wherein [each] individual collection [device] containers (14,16, 18) [each case is] are furnished with [a] the registering device (66, 68,70).

5. (Amended) The device according to claim 4, wherein the registering device (66, 68, 70) is predisposed and preswitched to the collection [device] containers (14,16, 18).

6. (Amended) The device according to claim 4, wherein the [register] registering device (66. 1, 68.1, 70.1,) is disposed behind the collection [device] containers (14, 16, 18).

7. (Amended) The device according to claim 4, wherein the [register] registering device (66, 66.1, 68, 68.1, 70, 70.1,) is pre-disposed and post disposed to the collection [device] containers (14,16, 18).

8. (Amended) The device according to claim [1] 29, wherein [a supply] the transport device (20) [is present for transporting of] transports the laundry pieces (12) to the recognition device (40).

10. (Twice Amended) The device according to claim [9] 29, wherein the feed device (24,26) [includes] further comprises a first transport band (90) [exhibiting at least] having a plurality of individual compartments for receiving individual laundry pieces, wherein the [contents] individual laundry pieces of the

first transport band [is] are emptied onto [a] the transport [band] device leading to the recognition device (40).

11. (Twice Amended) The device according to claim [9] 29, wherein the feed device [includes at least one] further comprises a funnel (24, 26), wherein the [contents of] individual laundry pieces disposed within the funnel (24, 26) [is] are emptied onto [a] the transport [band] device (20) leading to the recognition device (40).

12. (Twice Amended) The device according to claim 11₂, wherein the funnel (24,26) is furnished with a flap floor (32), wherein the flap floor (32) is [such flipped open] opened and [flipped] closed such that the laundry pieces (12) falling out of the funnel (24, 26) are transferred to the recognition device (40) [in each case with a mutual distance not falling below a predetermined minimum measure and/or a time interval not falling below a predetermined minimum measure] by the transport device at a predetermined interval, wherein the interval is one of a predetermined distance between the laundry pieces on the transport device and a predetermined period of time between the dispensing of the laundry pieces, so that the laundry pieces are separate from each other.

13. (Amended) The device according to claim 12₂, wherein the flap floor (32) [is formed from several] further comprises a plurality of flap parts (28, 30).

14. (Twice Amended) The device according to claim 12, wherein [several such] there are a plurality of funnels (24, 26) [are present and disposed, wherein] and the flap floors (32) [of all funnels (24, 26)] are [flipped open] opened only jointly and are [flipped] closed only jointly.

15. (Amended) The device according to claim 11, further comprising a [wherein the] sensor device (34, 36) for [recognition of] recognizing one of a predetermined number [or] and a predetermined volume of laundry pieces (12) [is] present within the funnel (24, 26).

16. (Amended) The device according to claim 13, further comprising [wherein] a sensor device (34, 36) [is] present at each flap part (28, 30) for [recognition of] recognizing one of a predetermined number [or] and a predetermined volume of laundry pieces (12) on [each] the flap parts (28, 30).

17. (Amended) A device for sorting of laundry pieces comprising:
a feed device that receives the laundry pieces and dispenses them;

a transport device for transporting different types of laundry pieces dispensed from the feed device at a predetermined interval, wherein the interval is one of a predetermined distance between the laundry pieces on the transport device and a predetermined period of time between the dispensing of the laundry pieces, so that the laundry pieces are separate from each other;

a first collection device for receiving a first type of laundry pieces and disposed in a receiving relationship to the transport device;

a second collection device for receiving a second type of laundry pieces and disposed in a receiving relationship to the transport device;

a recognition device disposed near the transport device [such that laundry pieces disposed on the transport device are recognizable for the recognition device, wherein the recognition device recognizes] for determining different types of laundry pieces dispensed on the transport device, and for generating a data signal related thereto, the transport device transferring the first type of laundry pieces from the recognition device to the region of the first collection device and for transferring the second type of laundry pieces from the recognition device to the region of the second collection device [and for generating a data signal];

a [register] registering device [predisposed] located with respect to the first collection device and to the second collection device for registering [of] the laundry pieces [disposed in] transported on the transport device and [for] generating a corresponding register signal;

a data [processing plant] processor connected to the recognition device and to the [register] registering device [and] for receiving and [then] processing the data [signals] signal received from the recognition device, and for receiving and [then] processing the register signal received from the registering device, [wherein the register signal associated with a certain piece of laundry together with the data signal corresponding to the certain piece of

laundry is processed in the data processing plant to] and generating a control signal in response thereto;

a control means connected to the data [processing plant] processor for receiving the control signal [for], the control means selecting one of the first collection device [or, respectively,] and the second [recognition] collection device[depending] based on the control signal and [for controlling] assuring that the first collection device receives the first type of laundry pieces and [that] the second collection device receives the second type of laundry pieces.

18. (Twice Amended) The device according to claim 17, wherein the transport device [includes] further comprises:

a transport band, wherein the [collection devices are] first collection device and the second collection device are disposed along the transport band in a transport direction; wherein the control means [includes] further comprises:

a first blower device coordinated to the first collection device for generating a first stream of air in response to the control signal, wherein the first stream of air is directed against the first type of laundry pieces on the transport band; [and]

a second blower device coordinated to the second collection device for generating a second stream of air in response to the control signal, wherein the second stream of air is directed against the second type of laundry pieces on said transport band;

wherein [a control signal delivered by the data processing plant directs the corresponding blower device to generate of a stream of air; wherein this stream of air is

directed against the transport band in the region of the laundry piece disposed in a collection device area of the transport band corresponding to this blower device, such that] the laundry [piece is] pieces are blown into the respective collection [container] device;

further comprising

a second registration device associated with the second collection device].

19. (Amended) The device according to claim 18, wherein the registering device comprises:

a first registering device [is] predisposed and [preswitched] associated with respect to the first collection device[;], [wherein the second registering device is predisposed and preswitched to the second collection device] and a second registering device predisposed and associated with respect to the second collection device.

20. (Amended) The device according to claim 18, wherein the registering device comprises:

a first registering device [is] disposed following [to] the first collection device[;], [wherein the] and a second registering device [is] disposed following [to] the second collection device.

21. (Twice Amended) The device according to claim 17, wherein [the transport device includes a supply device for transporting the laundry pieces to the recognition device); further comprising a feed device of the supply

device being such predisposed that a predetermined number of laundry pieces with a mutual distance not falling below a predetermined minimum value or a not lower time interval is transferable by the feed device to the supply device; wherein] the feed device [includes] comprises:

a [first] feed transport band [exhibiting at least] having a plurality of individual compartments, wherein individual laundry pieces are received into the individual compartments of the [first] feed transport band [is disposed such that the contents of the first transport band is emptied onto a transport band leading to the recognition device; wherein the feed device includes];

a funnel for receiving laundry pieces from the individual compartments of the feed transport band, [wherein] the contents of the funnel [is] are emptied onto the transport [band] device leading to the recognition device; wherein the funnel is furnished with a flap floor[, wherein the flap floor is flappable] which may be flapped open and [flappable] flapped closed such that laundry pieces falling out of the funnel are transferred on the transport device to the recognition device at a predetermined interval, wherein the interval is one of a predetermined distance between the laundry pieces on the transport band and a predetermined period of time between the dispensing of the laundry pieces, so that the laundry pieces are separate from each other [in each case with a mutual distance not falling below a predetermined minimum measure or a time interval not falling below a predetermined minimum measure]; [wherein] the flap floor is formed from a plurality of flap parts.

22. (Twice Amended) The device according to claim 21, further comprising:

a second funnel;

a second flap floor associated with the second funnel, wherein the second flap [floors] floor of the second funnel is only jointly [flappable] flapped open and only jointly [flappable] flapped closed together with the first flap floor of the first funnel[. further comprising];

a first sensor device [for recognition of] recognizing one of a predetermined number [or] and volume of laundry pieces present within the first funnel;

a second sensor device [for recognition of] recognizing one of a predetermined number [or] and a predetermined volume of laundry pieces present within the second funnel.

23. (Amended) A method for sorting of laundry pieces comprising;

(A) receiving the laundry pieces in a feed device;

(B) dispensing the laundry pieces from the feed device at a predetermined interval, wherein the interval is one of a predetermined distance between the laundry pieces on the transport device and a predetermined period of time between the dispensing of the laundry pieces, so that the laundry pieces are separate from each other;

(C) receiving the laundry pieces dispensed from the feed device on [disposing] a transport device disposed within reach of a recognition device and in a delivery relationship to a plurality of collection devices;

(D) recognizing different types of laundry pieces with the recognition device;

(E) delivering a data signal corresponding to [a certain] individual separated laundry [piece] pieces from the recognition device to a data [processing plant] processor;

(F) processing the data signal received from the recognition device in the data [processing plant] processor;

(G) registering the [certain] individual separated laundry [piece] pieces disposed in the transport device with a register device predisposed relative to the plurality of collection devices;

(H) generating a corresponding register signal associated with the registration of the individual laundry [piece] pieces in the register device;

(I) sending the register signal from the register device to the data [processing plant] processor;

(J) generating a corresponding control signal for the individual separated laundry pieces in response to the received data signal and the received register signal;

[processing the register signal associated with the certain piece of laundry together with the data signal corresponding to the certain piece of laundry in the data processing plant to a control signal;]

(K) using the data processor to select [selecting] predetermined collection devices [in the data processing plant] depending on the data signal;

(L) controlling [a] delivery of the [certain laundry piece] individual separated laundry pieces coordinated to the data signal to a predetermined one of the plurality of collection devices;

(M) employing the control signal for controlling the predetermined one of the plurality of collection devices for receiving of the [certain laundry piece] individual separated laundry pieces corresponding to the control signal;

(N) transferring the [certain laundry piece] individual separated laundry pieces from the recognition device to the predetermined one of the plurality of collection devices;

(O) receiving the certain laundry piece in the predetermined one of the plurality of collection devices[;].

24. (Amended) The method according to claim 23, further comprising the steps of:

including a transport band in the transport device;

disposing the plurality of collection devices along the transport band in a transport direction;

coordinating a blower device to one of the plurality of the collection device;

connecting the blower device to the data [processing plant] processor for controlling the blower device;

furnishing [each one of] the plurality of collection devices with a register device;

delivering a control signal [to] from the data [processing plant] processor for directing the corresponding blower device to generate a stream of air;

directing [this] the stream of air horizontally and perpendicularly to the direction of the transport device in [the] a region of the [certain laundry piece] individual separated laundry pieces disposed in [the] a collection device area corresponding to this blower device;

blowing the [certain laundry piece] individual separated laundry pieces into the predetermined collection container.

25. (Amended) The method according to claim 23, further comprising the steps of:

predisposing [and preswitching] the registering device relative to the predetermined collection device.

26. (Amended) The [device] method according to claim 23, further comprising the steps of:

post disposing [and postswitching] the register device behind the predetermined collection device.

27. (Twice Amended) The [device] method according to claim 23, further comprising the steps of:

[furnishing a supply device for transporting of laundry pieces to the recognition device;

predisposing a feed device of the supply device such that a predetermined number of laundry pieces with a mutual distance not falling below a predetermined minimum value or a not lower time interval is transferable to the supply device];

furnishing a [first] feed transport band [exhibiting] having at least individual compartments [to] as part of the feed device, the compartments transport laundry pieces;

[emptying a contents of a first transport band onto a transport band leading to the recognition device;]

furnishing at least one funnel with a flap floor for receiving laundry pieces from the compartments of the feed transport band [to the feed device];

emptying a contents of the funnel onto [the] a transport band of said transport device leading to the recognition device;

[furnishing the funnel with a flap floor;]

flipping open and flipping closed the flap floor such that laundry pieces falling out of the funnel are transferred to the recognition device [in each case with a mutual distance not falling below a predetermined minimum measure or a time interval not falling below a predetermined minimum measure].

28. (Amended) The [device] method according to claim 23, further comprising the steps of:

employing and disposing [several] a plurality of funnels [each furnished with] further comprising a plurality of flap [floor] floors[;], wherein the flap floors [of all funnels] are flipped open only jointly and are flipped closed only jointly;

furnishing a sensor device for [recognition of] recognizing one of a predetermined number of laundry pieces [or] and a predetermined volume of laundry pieces within each funnel; and

disposing the sensor device at each flap part for [recognition of] recognizing one
of a predetermined number [or] and a predetermined volume of laundry pieces on each flap
part.